AMENDMENTS TO THE CLAIMS

1-6. (withdrawn)

7. (currently amended) A method for forming a miniarray on a miniarray substrate, said miniarray comprises ~~wherein each known~~ locations or spots ~~in said miniarray~~ that contain ~~contains an~~ analyte specific reagent for detecting an analyte in a sample, said method comprises ~~comprising~~ the steps of:

(a) aspirating a solution of each analyte specific reagent with a pipette-based dispensers connected to a syringe pump;

(b) pressuring [[a]] small defined droplets ~~droplet~~ of said analyte specific reagent from ~~the narrow opening of~~ the tips ~~tip~~ of said pipette-based dispensers;

(c) touching said droplets ~~droplet~~ to said ~~the surface of the~~ miniarray substrate and releasing ~~with an action effective to release~~ said droplets ~~droplet~~, thereby spotting [[a]] specific locations or spots on said substrate ~~location in said miniarray~~ with a specific volume of said analyte specific reagent, wherein said locations or spots have a center-to-center spacing of about 0.5 mm to about 3 mm; and

(d) repeating steps (a) to (c) until said miniarray is fabricated.

8. (withdrawn)

9. (currently amended) The method of claim 7, wherein said pipette-based dispensers are arranged in one or two rows. ~~, or more than one, row.~~

10. (original) The method of claim 7, wherein said pipette-based dispensers can operate simultaneously to load microliter quantities of sample reagents in solution and to dispense nanoliter quantities of said reagent solutions on the surface of the miniarray substrate.

11. (original) The method of claim 7, wherein said pipette-based dispensers have tips selected from the group consisting of disposable tips that

can be ejected and replaced automatically and fixed tips that are cleaned and dried between sample loadings.

12. (original) The method of claim 7, wherein releasing of said droplet is performed by ejecting sufficient volume from the tip of said pipette-based dispensers to cause said droplet to release by gravity.

13. (original) The method of claim 7, wherein releasing of said droplet is performed by applying electromechanical force to the tip of said pipette-based dispensers to cause said droplet to release by gravity, wherein said electromechanical force is selected from the group consisting of vibration, piezoelectric pressure, and rapid mechanical actuation.

14. (original) The method of claim 7, wherein said pipette-based dispensers are carried by a robotically controlled apparatus that provides lateral and vertical motions, thereby automating the loading of multiple reagent samples, the replacement or cleaning of pipette tips, and the spotting of multiple miniarrays under programmed instructions.

15. (original) The method of claim 7, wherein said miniarray achieves a smaller, more condensed distribution by interspersing successive dispensing of reagents onto the array in regions between the spots dispensed previously.

16. (original) The method of claim 7, wherein tips of said pipette-based dispensers are spaced 9 mm or 4.5 mm center to center to load multiple reagent samples from standard 96 well or 384 well plates.

17. (original) The method of claim 7, wherein said pipette-based dispensers are stationary, except for vertical motion, and miniarray substrates and reagent samples are moved under said dispensers by a robotic apparatus that moves under programmed instructions.

18. (original) The method of claim 7, wherein said miniarray substrate is selected from the group consisting of coated microscope slides, flexible membranes, rigid glass, plastics, semi-rigid film, paper-based printing substrates, semi-rigid printing materials, photographic paper and high quality computer printing papers.

19. (original) The method of claim 7, wherein said analyte specific reagent comprises material selected from the group consisting of antibodies that bind to selected proteins of the analyte sample and polynucleotides complementary to sequences of the analyte sample, wherein said antibodies or polynucleotides are used to detect and measure the relative frequency with which specific genes are expressed in the sample.

20. (original) The method of claim 7, wherein said analyte sample comprises material selected from the group consisting of total RNA, mRNA, cDNA probes made from RNA transcripts, intracellular proteins and secreted proteins.

21. (original) The method of claim 20, wherein two or more analyte samples are labeled differently and compared by competitive binding to the same miniarray to determine relative gene expression levels between said samples.

22. (original) The method of claim 21, wherein said samples are labeled by a means selected from the group consisting of isotopes, indirect labeling haptens, direct fluorescent reagents, indirect fluorescent reagents, quantum dots and nanogold.

23-54. (withdrawn)